

ArrowStar reactor vessel cleaning process:

ArrowStar will campaign produce the Arropol polyol in order to produce a 30 day supply until the time the reactor will solely be used to produce Arropol. The reactor is dish bottomed and will be completely gravity drained (approx... 1% residue) prior to cleaning. The reactor will be first flushed with 4,536 kg diethylene glycol which will dilute the residue to 1.4%, the reactor will then be drained to 1% diluted residue and will be captured for reuse as a raw material in future production. This process will leave 45 kg of 1.4% residue containing material resulting in 0.64 kg of product in the reactor. Reactor will then be flushed with a surfactant/water solution; this will pass to the POTW (Dalton Utilities) pursuant to our sewer use permit. Due to the flushing and capture of the residue we estimate the release of Arropol will be less than 0.01% of single batch reactor capacity (6,350 kg/batch) or 0.64 kg per month.

ArrowStar storage tank cleaning process:

The storage tank for the Arropol will not need routine cleaning and will only be cleaned if it is taken out of service for Arropol storage, this residue will be transferred to an off-site waste contractor and will not be discharged to the POTW.

Semi-rigid spray foam for insulation:

Customer will receive Arropol in drums or IBC containers which when emptied will be transferred off-site to a certified container reconditioning facility. Arropol is blended with other polyols to less than 25% of the polyol blend. The customer's blending equipment is flushed with virgin polyol which is used in future batches. Due to the necessity of many anhydrous conditions the equipment is never flushed/washed with water, thus eliminating the possibility of entering the POTW for water release. Off specification product which may contain up to 25% Arropol is sent to an EPA approved/registered TDS for fuels blending/energy recovery. The finished product as applied by an insulation contractor is a solid fully reacted polyurethane foam no longer contains Arropol in the unreacted form. Insulation contractor must clean out the application equipment with solvents such as acetone-this requires the cleaning solvent to be disposed of as hazardous waste which may contain minute amounts of unreacted Arropol, this material will not reach POTWs or water.

Foam for carpet cushion:

Customer will receive Arropol in drums or IBC containers which when emptied will be transferred off-site to a certified container reconditioning facility. Arropol is blended with other polyols to less than 25% of the polyol blend. The customer's blending equipment is a batch production facility with equipment dedicated to production like products and when needed is flushed with polyols to be used in future production. Due to the necessity of maintaining anhydrous conditions the equipment is never washed

with water, thus eliminating the possibility of releases to the POTW. The finished product after application to carpet is a solid fully reacted polyurethane and no longer contains Arropol in the unreacted form.

Polyurethane for synthetic turf backing:

Customer will receive Arropol in drums or IBC containers which when emptied will be transferred off-site to a certified container reconditioning facility. Arropol is blended with other polyols to less than 25% of the polyol blend. The customer's blending facility is a batch process of the same blend which does not require routine cleaning, when needed the equipment is flushed with polyols and used for future production. Due to the necessity of maintaining anhydrous conditions the equipment is never flushed/washed with water, thus eliminating the possibility of release to the POTW. The finished product after application to field turf is a solid, fully reacted polyurethane and no longer contains Arropol in the unreacted form.

Flexible foam for furniture:

Customer will receive Arropol in drums or IBC containers which when emptied will be transferred off-site to a certified container reconditioning facility. Arropol is blended with other polyols to less than 25% of the polyol blend. The customer's blending facility is a batch process of the same or like blends which do not require routine cleaning, when needed the equipment is flushed with polyols and used for future production. Due to the necessity of maintaining anhydrous conditions the equipment is never flushed/washed with water, thus eliminating the possibility of release to the POTW. The finished product is a solid, fully reacted polyurethane foam and no longer contains Arropol in the unreacted form.